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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/965,162	09/27/2001	Steve E. Hoffman	9436-9	3930
23973	7590	07/15/2004	EXAMINER	
DRINKER BIDDLE & REATH ONE LOGAN SQUARE 18TH AND CHERRY STREETS PHILADELPHIA, PA 19103-6996			ALIE, GHASSEM	
			ART UNIT	PAPER NUMBER
			3724	

DATE MAILED: 07/15/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

09/965,162

Applicant(s)

HOFFMAN, STEVE E.

Examiner

Ghassem Alie

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 01 May 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-19 is/are pending in the application.
- 4a) Of the above claim(s) 7-12 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-6 and 13-19 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 26 February 2002 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_.

1. This is an RCE and restriction requirement stands and it is maintained. Therefore, claims 7-12 are withdrawn from further consideration and only claims 1-6 and 13-18 are considered.

***Comment***

2. Applicant's assertion that the Examiner indicated that if the amended claims recite, "the resulting blade has reduced surface tensile residual stress", this would overcome the prior art is not correct. Neither the Examiner nor the Supervisory Examiner, Allan Shoap, indicated this at the interview which was held with the Applicant and the Applicant's representative on April 29, 2004.

***Drawings***

3. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they do not include the following reference character(s) mentioned in the description: "50" on page 10, line 23.

Corrected drawing sheets are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

***Claim Rejections - 35 USC § 112***

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4. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

5. Claims 1-6 and 13-19 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. Regarding claims 1 and 13, the disclosure fails to teach that the high precision surface finish has reduced residual tensile stress. Regarding claim 19, the disclosure fails to teach that high precision surface finish has a compressive residual stress. It is not clear how a reduced residual tensile stress or a compressive tensile stress is created on the high precision surface finish. It is also not clear what makes the high precision surface finish, with less than or equal than 10 Ra, also a surface that has reduced residual tensile stress finish surface.

This is a new matter rejection.

***Claim Rejections - 35 USC 102***

6. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

7. Claims 1, 2, 6, 13, 14, 18, as best understood, are rejected under 35 U.S.C. 102(b) as being unpatentable over Vankov et al. (5,802,932), hereinafter Vankov. The device of

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Vankov discloses the invention as claimed, including, inter alia, a straight blade portion with a plurality of teeth and two opposed sides which define a blade portion width, having a surface finish which is less than approximately 10 Ra (col. 5, lines 56-61; col. 6, lines 14-18, col. 10, lines 33-45), having a surface finish which is approximately 6 Ra or less (col. 6, lines 14-18), the sides of the teeth having a surface finish less than 10 Ra and less than 6 Ra (col. 5, line 65 through col. 6, line 3), a cutting edge and teeth having a cutting tips width that are substantially the same as the blade portion width. Vankov also teaches that the high precision surface finish inherently has reduced residual tensile stress, since the surface finish process inherently reduces the residual tensile stress of the blade portion by removing part of the cutting edge or sharpening the cutting edge. The smoother cutting edge or sharper cutting edge minimizes the contact surface of the cutting edge with the workpiece and consequently reduces the residual tensile stress. Claims 1 and 13 also include method steps, which make them product-by-process claims. For the reasons stated in paragraphs 17 and 18 below, the method steps have not been given weight.

***Claim Rejections - 35 USC 103***

8. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

9. Claims 3 and 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Vankov in view of Gakhar et al. (5,555,788), hereinafter Gakhar. The device of Vankov

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discloses everything noted above except for an anti-kickback portion coated with a low friction surface located behind each cutting tip. However, Gakhar teaches an anti-kickback portion coated with a low friction surface located behind each cutting tip (Fig. 43, item 14, col. 4, line 67, claim 3). It would have been obvious to one of ordinary skill in the art at the time the invention was made to provide the device of Vankov with an anti-kickback portion coated with a low friction surface located behind each cutting tip as taught by Gakhar for less blade binding.

10. Claims 4, 5, 16, 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Vankov. The device of Vankov discloses the invention as claimed except for the surface finish of the blade portion and the sides of the teeth being in a range of between approximately 2 Ra and 6 Ra and in a range of between approximately 2 Ra and 4 Ra. However, Official notice is taken that finishing processes for obtaining a desired surface roughness on a product are well known in the art, as it is evident in Hashimoto (5,873,770). Therefore, it would have been obvious to provide a surface roughness within the range claimed to reduce friction between the workpiece and the cutting blade.

Claim 19, as best understood, is rejected under 35 U.S.C. 103(a) as being unpatentable over Gakhar in view of Vankov. Regarding claim 19, Gakhar teaches a blade portion 10 having two opposite sides which define a blade width. Gakhar also teaches a plurality of teeth formed on the blade portion 10 and the teeth having opposed sides. Gakhar also teaches that the teeth have cutting tips 12 attached to the teeth which have a width. See Fig. 43 in Gakhar. Gakhar does not teach expressly that the sides of the teeth tips has a high

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precision surface finish which is less than or equal to approximately 10Ra and wherein the surface is formed with a compressive residual stress through a process which includes a high speed centrifugal finishing apparatus. However, the use of a high precision surface finish on the sides of the cutting having approximately 10 Ra or less is well known in the art such as taught by Vankov. Vankov teaches a blade including tips having sides with approximately less than 10 Ra. See col. 5, lines 56-61 and col. 6, lines 14-18 and col. 10, lines 33-45. The surface finish is approximately 6 Ra or less (col. 6, lines 14-18), the sides of the teeth having a surface finish less than 10 Ra and less than 6 Ra (col. 5, line 65 through col. 6, line 3).

Vankov also teaches that the high precision surface finish inherently has reduced residual tensile stress, since the surface finish process inherently reduces the residual tensile stress of the blade portion by removing part of the cutting edge or sharpening the cutting edge. The smoother cutting edge or sharper cutting edge minimizes the contact surface of the cutting edge with the workpiece and consequently reduces the residual tensile stress.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to provide the side of the cutting tips of Gakhar's cutting blade with the surface finish as taught by Vankov in order to provide smooth and sharp cutting tips for the cutting blade. Claim 19 is also include method steps, making it a product-by-process claim. For the reasons stated in paragraphs 17 and 18 below, the method steps have not been given weight.

In the case that applicant provide a convincing argument that the surface of the Vankov's cutting blade does not have reduced residual tensile stress, the Examiner also relies on the rejections provided below.

13. Claims 1, 2, 6, 13, 14, 18, as best understood, are rejected under 35 U.S.C. 103(a)

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as being unpatentable over Vankov in view of Butcher et al. (6,220,375), hereinafter Butcher. Regarding claims 1, 2, 6, 13, 14, and 18, the device of Vankov discloses the invention as claimed, including, inter alia, a straight blade portion with a plurality of teeth and two opposed sides which define a blade portion width, having a surface finish which is less than approximately 10 Ra (col. 5, lines 56-61; col. 6, lines 14-18, col. 10, lines 33-45), having a surface finish which is approximately 6 Ra or less (col. 6, lines 14-18), the sides of the teeth having a surface finish less than 10 Ra and less than 6 Ra (col. 5, line 65 through col. 6, line 3), a cutting edge and teeth having a cutting tips width that are substantially the same as the blade portion width. Vankov does not expressly teach that the high precision surface finish also has reduced residual tensile stress. However, the used of a cutting blade with a reduced residual tensile stress is well known in the art such as taught by Butcher. Butcher teaches a cutter 10 which its residual tensile stress is modified by different processes such as decreasing the thickness of the cutter, changing the material composition of the cutter, and annealing process of the cutter. See Figs. 1-14C and col. 5 and 6, lines 1-67 and col. 7, lines 46-67 in Butcher. It would have been obvious to one of ordinary skill in the art to provide the blade portion with the process as taught by Butcher in order to obtain a desired residual tensile and a compressive residual stress. Claims 1 and 13 also include method steps which make them product-by-process claims. For the reasons stated in paragraphs 17 and 18 below, the method steps have not been given weight.

14. Claims 3 and 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Vankov in view of Butcher, as applied to claim 1, and in further view of Gakhar. Vankov as modified by Butcher teaches everything noted above except for an anti-kickback portion



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coated with a low friction surface located behind each cutting tip. However, Gakhar teaches an anti-kickback portion coated with a low friction surface located behind each cutting tip (Fig. 43, item 14, col. 4, line 67, claim 3). It would have been obvious to one of ordinary skill in the art to provide the device of Vankov, as modified by Butcher, with an anti-kickback portion coated with a low friction surface located behind each cutting tip as taught by Gakhar for less blade binding.

15. Claims 4, 5, 16, 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Vankov in view of Butcher. Vankov as modified above teaches everything noted above except for the surface finish of the blade portion and the sides of the teeth being in a range of between approximately 2 Ra and 6 Ra and in a range of between approximately 2 Ra and 4 Ra. However, Official notice is taken that finishing processes for obtaining a desired surface roughness on a product are well known in the art, as it is evident in Hashimoto (5,873,770). Therefore, it would have been obvious to provide a surface roughness within the range claimed to reduce friction between the workpiece and the cutting blade.

16. Claim 19, as best understood, is rejected under 35 U.S.C. 103(a) as being unpatentable over Gakhar in view of Vankov and Butcher. Regarding claim 19, Gakhar teaches a blade portion 10 having two opposite sides width. Gakhar also teaches a plurality of teeth formed on the blade portion 10 and the teeth having opposed sides. Gakhar also teaches that the teeth has cutting tips 12 attached to the teeth which have a width. See Fig. 43 in Gakhar. Gakhar does not teach expressly that the sides of the teeth tips has a high precision surface finish which is less than or equal to approximately 10Ra and wherein the surface is

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formed with a compressive residual stress through a process which includes a high speed centrifugal finishing apparatus. However, the use of a high precision surface finish on the sides of the cutting having approximately 10 Ra or less is well known in the art such as taught by Vankov. Vankov teaches a blade including tips which have sides with approximately less than 10 Ra. See col. 5, lines 56-61 and col. 6, lines 14-18 and col. 10, lines 33-45. The surface finish is approximately 6 Ra or less (col. 6, lines 14-18), the sides of the teeth having a surface finish less than 10 Ra and less than 6 Ra (col. 5, line 65 through col. 6, line 3). It would have been obvious to one of ordinary skill in the art at the time the invention was made to provide the side of the cutting tips of Gakhar's cutting blade with the surface finish as taught by Vankov in order to provide smooth and sharp cutting tips for the cutting blade. Gakhar also does not expressly teach that the high precision surface finish also has reduced residual tensile stress. However, the used of cutting blade with a reduced residual tensile stress is well known in the art such as taught by Butcher. Butcher teaches a cutter 10 which its residual tensile stress is modified by different processes such as decreasing the thickness of the cutter, changing the material composition of the cutter, and annealing process of the cutter. See Figs. 1-14C and col. 5 and 6, lines 1-67 and col. 7, lines 46-67 in Butcher. It would have been obvious to one of ordinary skill in the art to provide the blade portion of Gakhar's cutting blade with the process as taught by Butcher in order to obtain a desired residual tensile and a compressive residual stress. Claim 19 is also include method steps, which make it a product-by-process claim. For the reasons stated in paragraphs 17 and 19 below, the method steps have not been given weight.

***Response to Argument***

17. Applicant argument's filed on 5/10/04 have been considered by they are not persuasive. Applicant's argument that the process-by-product formulation is proper under MPEP § 2113 that the process produces a product that is structurally different and can not be defined in purely structure terms is not persuasive. Vankov does not disclose an electropolishing process, which may not be exactly the same as the polishing process in the instant application. However, Vankov's electropolishing process produces a substantially similar product as set forth in claims 1, 13, and 19. Vankov's electropolishing process produces a high precision surface for the blade portion having less than 10 Ra as set forth in claims 1, 13, and 19. Vankov's electropolishing process also is capable of reducing the residual tensile stress of the blade portion. In addition, according to MPEP § 2113, "If the product in the product-by-process claim is the same as or obvious from a product of the prior art, the claim is unpatentable even though the prior product was made by a different process." In re Thorpe, 777 F.2d 695,698, 277 USPQ 964, 966 (Fed. Cir. 1985). In view of this, similar to the process of the instant application, Vankov's process is also a polishing process which is used to produce a high precision surface finish for two opposed sides of a blade. Furthermore, according to MPEP § 2113, rejection of product-by-process claims under 35 U.S.C. 102 is proper because "...when the prior art discloses a product which reasonably appears to be either identical with or only slightly different from a product claimed in a product-by-process claim, a rejection based alternatively on either section 102 or section 103 of the statute is eminently fair and acceptable. As a practical matter, the Patent Office is not equipped to manufacture products by the myriad of processes put before it and then obtain

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prior art products and make physical comparisons therewith.' In re Brown, 459 F.2d 531, 535, 173 USPQ 685, 688 (CCPA 1972)." Therefore, the rejection is proper. Applicant's argument that claims 1 and 13 are non-obvious over the combination of Vankov and Gakhar is not persuasive. Gakhar teaches that the blade tips has an anti-kickback. It would have been obvious to one of ordinary skill in the art to provide Vankov's cutting blade with an anti-kickback portion coated with a low friction surface located behind each cutting tip as taught by Gakhar for less blade binding.

### ***37 CFR 1.32 Declaration***

18. The declaration under 37 CFR 1.132 filed on 5/10/2004 is insufficient to overcome the rejection of claims 1, 2, 13, 14, and 18 based upon the US patent to Vankov et al. (5,802,932) as set forth in the last Office action because: applicant has not produced any convincing evidence establishing an unobvious difference between the claimed product and the prior art product. Applicant's submitted declaration is only a confirmation of a process of polishing the blade surface with a high speed centrifugal apparatus. However, as indicated above, the claimed product is similar to Vankov's product, since both of these products are blades which have opposed sides and a precision surface finish with less than 10Ra. It is also inherent the Vankov's electropolishing process is capable of reducing the residual tensile stress of the blade opposed sides.

### ***Conclusion***

19. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Chaves (6,196,341 and 5,971,087), Smith et al. (5,492,188), Hashimoto (5,873,770),

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And Minikus et al. (6,161,634) teach a process for reducing residual tensile stress on the working surface.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ghassem Alie whose telephone number is (703) 305-4981. The examiner can normally be reached on Mon-Fri 8:30 am - 5:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Allan Shoap can be reached on (703) 305-1082.

The fax phone numbers for the organization where this application or proceeding is assigned are (703) 872-9306 for regular communications and (703) 872-9302 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-1148.

GA/ga

June 28, 2004



Allan N. Shoap  
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